

C-6.3 Illustrate the colligative properties of solutions (including freezing point depression and boiling point elevation and their practical uses).

**Revised Taxonomy Level      2.2-B   Exemplify (illustrate) conceptual knowledge**

**Students did not study this concept in physical science**

**It is essential for students to**

- ❖ Understand that colligative properties are properties that depend on the concentration of solute particles but not on their identity.
- ❖ Describe melting point depression and boiling point elevation qualitatively in terms of Kinetic Molecular Theory
  - Explain how the concentration of the solution may differ from the concentration of the solute particles.
- ❖ Discuss causes of the differences between expected and experimentally observed colligative properties of electrolytic solutions.
- ❖ Identify practical uses for the colligative properties of solutions.

**Assessment**

The verb exemplify (illustrate) means to find a specific example or illustration of a concept or principle, therefore the major focus of assessment should be for students to give examples that show that they understand how the concentration of the solute particles in a solution affect colligative properties. Conceptual knowledge requires that students understand the interrelationships among the basic elements within a larger structure that enable them to function together. In this case, that students understand how the colligative properties of substances in solutions are affected by the number of solute particles in terms of the Kinetic Molecular Theory.